WHAT IS CLAIMED IS:

1. A piezoelectric resonator using radial flexural mode vibration, comprising:

an even number of at least four electrode layers; and

an odd number of at least three piezoelectric layers;

wherein:

said at least four electrode layers and said at least three piezoelectric layers are alternately stacked;

at least two piezoelectric layers among said at least three piezoelectric layers are polarized in a thickness direction;

said at least four electrode layers are connected to one another such that in at least one piezoelectric layer among said at least three piezoelectric layers, an electric field is generated in a direction that is identical to the polarization direction of said at least one piezoelectric layer, and in at least another piezoelectric layer among said at least three piezoelectric layers, an electric field is generated in a direction that is opposite to the polarization direction of said at least another piezoelectric layer; and

among said at least three piezoelectric layers, at least one piezoelectric layer has a thickness that is different from each of the thicknesses of the other

piezoelectric layers.

2. A piezoelectric resonator according to Claim 1, wherein said at least three piezoelectric layers have a relationship expressed by

$$t_1 = t_3 \neq t_2$$

where $t_2$ represents the thickness of the central piezoelectric layer among said at least three piezoelectric layers, and $t_1$ and $t_3$ represent the thicknesses of the other piezoelectric layers, respectively.

3. A piezoelectric resonator according to Claim 1, wherein said at least three piezoelectric layers have a relationship expressed by

$$1 < t_1/t_2 < 3 \text{ and } 1 < t_3/t_2 < 3$$

where $t_2$ represents the thickness of the central piezoelectric layer, and $t_1$ and $t_3$ represent the thicknesses of the outer piezoelectric layers, respectively.

4. A piezoelectric resonator according to Claim 1, wherein, among said at least three piezoelectric layers, the

central piezoelectric layer is polarized in the thickness direction.

5. A piezoelectric resonator according to Claim 1, wherein, among said at least three piezoelectric layers, the central piezoelectric layer is not piezoelectrically active.

6. A piezoelectric resonator according to Claim 1, wherein among said at least three piezoelectric layers which includes two outer piezoelectric layers and a central piezoelectric layer, the outer piezoelectric layers are oppositely polarized, and the central piezoelectric layer is polarized in a direction that is identical to one of the two outer piezoelectric layers.

7. A piezoelectric resonator according to Claim 1, further comprising connection electrodes provided on two sides of said at least three piezoelectric layers and connected to the internal electrodes

8. A piezoelectric resonator according to Claim 1, wherein said at least three piezoelectric layers includes an upper piezoelectric layer, a central piezoelectric layer and a lower piezoelectric layer, an in the upper piezoelectric layer, the polarization direction and the electric field

direction are opposite to each other, and in the central piezoelectric layer and the lower piezoelectric layer, the polarization directions and the electric field directions are identical to each other.

9. A piezoelectric resonator according to Claim 8, wherein among said at least three piezoelectric layers which includes two outer piezoelectric layers and a central piezoelectric layer, the thicknesses of the outer piezoelectric layers are identical.

10. A piezoelectric resonator according to Claim 8, wherein among said at least three piezoelectric layers which includes two outer piezoelectric layers and a central piezoelectric layer, the thicknesses of the outer piezoelectric layers are different.

11. A piezoelectric resonator according to Claim 8, wherein said at least three piezoelectric layers includes two outer piezoelectric layers and a central piezoelectric layer, and the central piezoelectric layer is not polarized.